

DIALOG(R)File 347:JAPIO

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05930960     \*\*Image available\*\*

ELECTRIC FIELD LIGHT EMISSION DISPLAY DEVICE AND ITS DRIVING METHOD

PUB. NO.:     10-214060 [JP 10214060 A]

PUBLISHED:     August 11, 1998 (19980811)

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APPLICANT(s): CASIO COMPUT CO LTD [350750] (A Japanese Company or  
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APPL. NO.:     09-027323 [JP 9727323]

FILED:           January 28, 1997 (19970128)

INTL CLASS:     [6] G09G-003/30; H05B-033/08

JAPIO CLASS:   44.9 (COMMUNICATION -- Other); 43.4 (ELECTRIC POWER --  
                 Applications)

JAPIO KEYWORD: R096 (ELECTRONIC MATERIALS -- Glass Conductors)

#### ABSTRACT

PROBLEM TO BE SOLVED: To provide the driving method for the electric field light emission display device which can make a gradational display with controllability and be driven with low power consumption.

SOLUTION: One frame period of the electric field light emission device which has electric field light emission elements arranged in matrix and selection transistors and driving transistors of the electric field light emission elements connected is divided into eight subframes 1 to 8. Those subframes are so set that they consist of different display discharge times  $T_{on}$  by the respective subframes 1 to 8 and an address period  $T_{add}$  of the same time among all the subframes 1 to 8. Consequently, total light emission times by pixels can be made different according to whether pixels are selected in the eight subframes 1 to 8, thereby enabling gradational representation.

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05949549   \*\*Image available\*\*

**ELECTRIC FIELD LUMINESCENT DISPLAY DEVICE AND DRIVING METHOD THEREFOR**

PUB. NO.:     **10-232649** [JP 10232649 A]

PUBLISHED:   September 02, 1998 (19980902)

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APPL. NO.:    09-052543 [JP 9752543]

FILED:        February 21, 1997 (19970221)

INTL CLASS:   [6] G09G-003/30

JAPIO CLASS:  44.9 (COMMUNICATION -- Other)

JAPIO KEYWORD: R096 (ELECTRONIC MATERIALS -- Glass Conductors)

**ABSTRACT**

**PROBLEM TO BE SOLVED:** To provide the driving method of an electric field luminescent display device capable of performing a tone display having satisfactory control property and capable of performing an operation of lower power consumption.

**SOLUTION:** One frame period of an electric field luminescent display device in which electric field light emitting elements are arranged in a matrix shape and selection transistors and driving transistors are connected to these electric field light emitting elements is divided into eight subframes. These subframes are consisting of light emission setting times  $T_{on}$  and address periods  $T_{add}$  being the same times in all subframes and different light emission driving voltages or driving currents are set so as to be impressed in respective subframes. Since, a tone level for every pixel is made different according to in which subframe among the eight subframes the pixel is selected, a tone expression is made possible.

DIALOG(R)File 352:Derwent WPI  
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012011276      \*\*Image available\*\*  
WPI Acc No: 1998-428186/199836  
XRPX Acc No: N98-334166

Electroluminescent display apparatus with several electroluminescent elements - emit light in response to applied volts or current, elements have electrode and luminescent layer in contact with electrode, and 2nd electrode in contact with layer, switch circuits on electrodes apply driver volts to selected elements

Patent Assignee: CASIO COMPUTER CO LTD (CASK )

Inventor: SHIOYA M; YAMADA H

Number of Countries: 016    Number of Patents: 008

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9833165	A1	19980730	WO 98JP327	A	19980127	199836 B
<b>JP 10214060</b>	A	19980811	JP 9727323	A	19970128	199842
<b>JP 10232649</b>	A	19980902	JP 9752543	A	19970221	199845
JP 10319909	A	19981204	JP 97148719	A	19970522	199908
JP 10333641	A	19981218	JP 97154320	A	19970529	199910
EP 906609	A1	19990407	EP 98900761	A	19980127	199918
			WO 98JP327	A	19980127	
CN 1216135	A	19990505	CN 98800067	A	19980127	199936
US 5990629	A	19991123	US 9813708	A	19980126	200002

Priority Applications (No Type Date): JP 97154320 A 19970529; JP 9727323 A 19970128; JP 9752543 A 19970221; JP 97148719 A 19970522

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
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WO 9833165	A1	E 158	G09G-003/32	
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Designated States (National): CA CN KR MX NO SG

Designated States (Regional): CH DE EA FR GB NL SE

JP 10214060	A	10	G09G-003/30
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JP 10232649	A	11	G09G-003/30
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JP 10319909	A	19	G09G-003/30
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JP 10333641	A	19	G09G-003/30
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EP 906609	A1 E	G09G-003/32	Based on patent WO 9833165
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Designated States (Regional): CH DE FR GB LI NL SE

US 5990629	A	G09G-003/10
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CN 1216135	A	G09G-003/32
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Abstract (Basic): WO 9833165 A

The apparatus (fig 1) has electroluminescent elements emitting light in response to an applied voltage or current. Each element has a first electrode and an electroluminescent layer in contact with the first electrode and a second electrode in contact with the layer. Several first switching circuits are connected to the first electrodes and apply a driver voltage to selected elements in each address period. Each circuit has a smaller resistance ratio than that of each element during each light emission setting period. A second switching circuit is connected to each second electrode and applies a second drive voltage different from the first to all the elements in each light emission setting period.

USE - Relates to display device and driving method for it suitable for grading display of organic

electroluminescent device or organic EL element.

ADVANTAGE - Has high image quality and excellent light emission luminance gradation can be obtained. Dwg.1/33

Title        Terms:        ELECTROLUMINESCENT;        DISPLAY;        APPARATUS;  
ELECTROLUMINESCENT; ELEMENT; EMT; LIGHT; RESPOND; APPLY; VOLT;  
CURRENT; ELEMENT; ELECTRODE; LUMINESCENT; LAYER; CONTACT;  
ELECTRODE; ELECTRODE; CONTACT; LAYER; SWITCH ; CIRCUIT; ELECTRODE;  
APPLY; DRIVE; VOLT; SELECT; ELEMENT

Derwent Class: P85; T04; U14

International Patent Class (Main): G09G-003/10; G09G-003/30; G09G-003/32

International Patent Class (Additional): G09G-003/36; H05B-033/08

File Segment: EPI; EngPI